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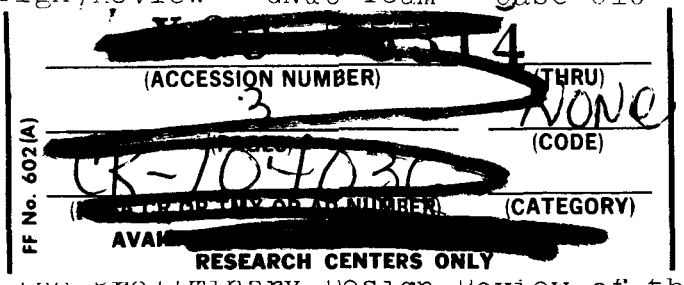
SUBJECT: Trip Report: AAP CSM Preliminary Design Review - GN&C Team - Case 610

DATE: February 25, 1969

FROM: K. E. Martersteck



The Preliminary Design Review of the AAP CSM was held at the facilities of the North American Rockwell Corporation during the weeks of February 4 and 10. The author participated as a member of the Guidance, Navigation and Control Review Team which met February 10-12, co-chaired by W. H. Hamby, MSC/AAPO, and A. Cormack, NR/G&C.

Items reviewed were the Contract End Item Specification (Part I), Performance and Design Requirements and Interface Control Document. Generally the comments on these documents were of a minor nature to clarify or correct detail of a few sections. These comments were included in the minutes of the team meeting rather than a RID.

Since the Primary Guidance, Navigation and Control Subsystem (PGNCS) is a GFE item, most of the discussion on G&C hardware was focused on the Stabilization and Control Subsystem (SCS). NR has recommended that the SCS jet select logic be modified so that the SM translation jet pairs can be used to control the OA attitude. The PGNCS will have this capability via a software modification but implementation in the SCS involves hardware changes. The NR recommendation includes wiring modification external to the SCS logic package which they claim would incur the minimum cost penalty. However, team members from the MSC G&C Division indicated that the SCS electronics should be modified to implement the new logic option, so they submitted a RID to that effect. W. Hamby questioned whether any SCS change is needed, since the PGNCS could handle any requirement for the CSM to control the OA attitude and the SCS serves only as a backup. Mr. Hamby accepted a modified version of the RID calling for a trade-off study to be made on the two modification approaches but with judgment reserved on whether the SCS jet logic should be changed at all.

The MSC G&C representatives also submitted a RID against the arrangement for supplying electrical power to the SCS. In the Block II Apollo CSM, various portions of SCS receive power from different busses. If there is a bus failure, the SCS can still be used but with degraded capability. The RID calls for wiring changes so that the loss of a single power bus will not cause loss of SCS capability. NR responded that this is a "product improvement" item and not essential for AAP. Mr. Hamby concurred with NR but accepted the RID for study.

The adequacy of the commands to the LM from the CM for unmanned rendezvous was questioned. The issue could not be resolved because of uncertainty as to the specific meaning of some commands on the current list and the absence of Grumman representatives who were snow-bound in New York.

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